

US006122403A

United States Patent [19]

Rhoads

[*] Notice:

[56]

[11] **Patent Number:** 6,122,403

[45] Date of Patent: *Sep. 19, 2000

[54] COMPUTER SYSTEM LINKED BY USING INFORMATION IN DATA OBJECTS

[75] Inventor: Geoffrey B. Rhoads, West Linn, Oreg.

[73] Assignee: Digimarc Corporation, Tualatin, Oreg.

[10] 1200-8011 21-801111 201F0111102, 10111112, 0118

This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C.

154(a)(2).

This patent is subject to a terminal dis-

claimer.

[21] Appl. No.: **08/746,613**

[22] Filed: Nov. 12, 1996

Related U.S. Application Data

[63] Continuation-in-part of application No. 08/649,419, May 16, 1996, Pat. No. 5,862,260, and a continuation-in-part of application No. 08/508,083, Jul. 27, 1995, Pat. No. 5,841, 978, and a continuation-in-part of application No. PCT/US96/06618, May 7, 1996.

[51]	Int. Cl. ⁷		G06K 9/36
------	-----------------------	--	-----------

References Cited

U.S. PATENT DOCUMENTS

3,493,674	2/1970	Houghton .	
3,569,619	3/1971	Simjian 178/6.8	Š
3,585,290	6/1971	Sanford .	
3,655,162	4/1972	Yamamoto et al	

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

 058 482
 8/1982
 European Pat. Off. .

 372 601
 6/1990
 European Pat. Off. .

 411 232
 2/1991
 European Pat. Off. .

(List continued on next page.)

OTHER PUBLICATIONS

Burgett et al., "A Novel Method for Copyright Labeling Digitized Image Data," requested by e-mail from author (unavailable/password protected on IGD WWW site); 12 pages.

Caruso, "Digital Commerce, 2 plans for watermarks, which can bind proof of authorship to electronic works." *New York Times*, Aug. 7, 1995, one page.

"Holographic signatures for digital images," *The Seybold Report on Desktop Publishing*, Aug. 1995, one page.

(List continued on next page.)

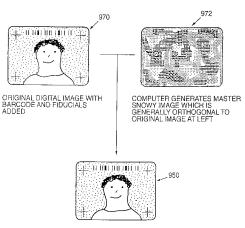
Primary Examiner—Jose L. Couso Attorney, Agent, or Firm—Elmer Galbi

[57] ABSTRACT

Various improvements to steganographic systems, and applications therefore, are disclosed. The improvements include facilitating scale and rotation registration for steganographic decoding by use of rotationally symmetric steganographically embedded patterns and subliminal digital graticules; improved techniques for decoding without access to unencoded originals; improving robustness of steganographic coding in motion pictures and/or in the presence of lossy compression/decompression; and representing data by patterned bit cells whose energy in the spatial domain facilitates decoding registration. Applications include enhancedsecurity financial transactions, counterfeit resistant identification cards, fraud deterrent systems for cellular telephony, covert modem channels in video transmissions, photo duplication kiosks with automatic copyright detection, and hotlinked image objects (e.g. with embedded URLs) for use on the internet.

5 Claims, 51 Drawing Sheets

Microfiche Appendix Included (13 Microfiche, 1077 Pages)



COMBINED TO FORM PERSONAL CASH CARD